

What is claimed is:

1. A zoom lens comprising:

5 a first group of lenses, a second group of lenses and a third group of lenses which are subsequently arranged from a side of an object to a side of an image;

said first group of lenses having a negative refractive power, said second group of lenses having a positive refractive power and said third
10 group of lenses having a positive refractive power;

an aperture stop provided at the object side of said second group of lenses;

a first positive lens;

a negative lens;

15 a second positive lens; and

a third positive lens

said first positive lens, negative lens, second positive lens, and third positive lens being subsequently arranged from the object side to the image side in said second group of lenses, wherein

20 when a zooming from a short focal end to a long focal end is carried out, said second group of lenses monotonously moves from the image side to the object side, and said first group of lenses moves so as to correct a displacement of a position of image plane in accordance with the zooming; and

25 at least said third positive lens positioned nearest to the image side is a plastic aspheric lens.

2. The zoom lens according to claim 1, wherein

said negative lens is formed by a negative lens of a meniscus shape which faces its convex surface toward the object side, and said second positive lens is formed by a positive lens of a meniscus shape which faces its convex surface toward the object side.

3. The zoom lens according to claim 1, wherein

a following conditional formula is satisfied:

$$0.08 < f_2 / f_{2p} < 0.8$$

if a focal length of said second group of lenses is f_2 , and the focal length of said third positive lens is f_{2p} .

4. The zoom lens according to claim 1, wherein

at least said negative lens of said second group of lenses and said second positive lens are jointed.

5. The zoom lens according to claim 4, wherein

a following conditional formula is satisfied:

$$0.8 < R_c / Y_{\max} < 1.2$$

if a radius of curvature in a jointed surface of said second group of lenses is R_c , and a maximum image height is Y_{\max} .

6. The zoom lens according to claim 1, wherein

said aperture stop provided at the object side of said second group of lenses moves integrally with the second group of lenses, and at least a surface of said second group of lenses that is nearest to the object side is an aspheric surface.

7. The zoom lens according to claim 1, wherein
at least one piece of plastic aspheric lens, whose both surfaces
thereof are aspheric surfaces, is provided.

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8. The zoom lens according to claim 1, wherein
said first group of lenses is provided with a plastic aspheric lens,
and said third group of lenses is provided with a plastic aspheric lens.

10 9. A camera comprising:

a zoom lens as a photographing optical system;

said zoom lens being comprised of a first group of lenses, a second
group of lenses and a third group of lenses which are subsequently
arranged from an object side to an image side;

15 said first group of lenses having a negative refractive power, said
second group of lenses having a positive refractive power and said third
group of lenses having the positive refractive power;

an aperture stop provided at the object side of said second group of
lenses;

20 when a zooming from a short focal end to a long focal end is carried
out, said second group of lenses monotonously moves from the image side
to the object side, and said first group of lenses moves so as to correct a
displacement of a position of image plane in accordance with the
zooming; and

25 a first positive lens, a negative lens, a second positive lens and a
third positive lens being subsequently arranged from the object side to
the image side in said second group of lenses, wherein

at least said third positive lens positioned nearest to the image side is a plastic aspheric lens.

10. A portable information terminal apparatus comprising:

5 a zoom lens as a photographing optical system of a camera function section;

said zoom lens being comprised of a first group of lenses, a second group of lenses and a third group of lenses which are subsequently arranged from an object side to an image side;

10 said first group of lenses having a negative refractive power, said second group of lenses having a positive refractive power and said third group of lenses having the positive refractive power;

an aperture stop provided at the object side of said second group of lenses, wherein

15 when a zooming from a short focal end to a long focal end is carried out, said second group of lenses monotonously moves from the image side to the object side, and said first group of lenses moves so as to correct a displacement of a position of image plane in accordance with the zooming; and

20 a first positive lens, a negative lens, a second positive lens and a third positive lens are subsequently arranged from the object side to the image side in said second group of lenses, wherein

at least said third positive lens positioned nearest to the image side is a plastic aspheric lens.

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